

Abstract

Method for making a field effect transistor with diamond-like carbon channel and resulting transistor

The field effect transistor comprises a source (10) and a drain (11) connected by a channel (7) controlled by a gate electrode (5) separated from the channel (7) by a gate insulator (3). The channel (7) is formed by a diamond-like carbon layer. The method for making the transistor successively comprises deposition of a diamond-like carbon layer on a substrate (2), deposition of a gate insulating layer (3) and deposition of at least one conducting layer (4). The conducting layer (4) is etched to form the gate electrode (5). Then an insulating material is deposited on the flanks of the gate electrode (5) to form a lateral insulator (6). Then the gate insulating layer (3) is etched and the diamond-like carbon layer is etched so as to delineate the channel (7). Then a semi-conducting material designed to form the source (10) and a semi-conducting material designed to form the drain (11) are deposited on each side of the channel (7).

(Figure 5)